

## General Description

The AOZ8S325BDS-40 is a 1-channel bidirectional low capacitance transient voltage suppressor designed to protect data lines from damaging ESD or surge events.

This device incorporates two unidirectional TVS diodes in a single package. During transient conditions, the bidirectional diodes direct the transient to either the positive side of the power supply line or to ground.

The AOZ8S325BDS-40 provides a typical capacitance of 0.35pF and low clamping voltage making it ideally suited for data transmission protection in mobile and computing devices.

The AOZ8S325BDS-40 comes in a RoHS compliant and Halogen Free 1.0mm × 0.6mm × 0.5mm package and is rated for -40°C to +125°C junction temperature range.

## Features

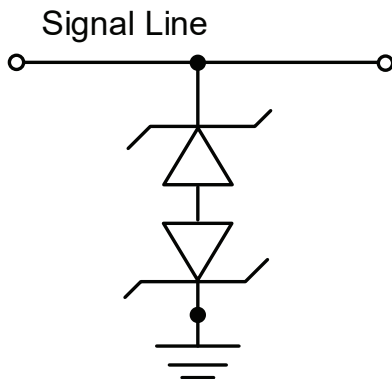
- IEC 61000-4-2, ESD immunity:
  - Air discharge: ±8kV
  - Contact discharge: ±8kV
- IEC 61000-4-5, surge immunity (8/20 μs): 1A
- IEC 61000-4-4 (EFT, 5/50ns): 40A
- Human body mode (HBM): ±8kV
- Junction capacitance: 0.35 pF
- Reverse working voltage: 40V

## Applications

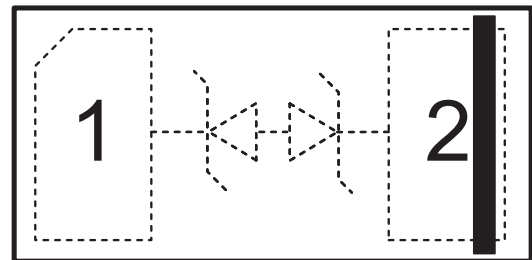
- Data lines
- Notebook computers
- Portable devices
- Digital cameras



## Typical Applications



## Pin Configuration



DFN1.0x0.6\_2L  
(Top View)

## Ordering Information

Part Number	Ambient Temperature Range	Package	Environmental
AOZ8S325BDS-40	-40°C to +125°C	DFN1.0×0.6-2L	Green Product



AOS Green Products use reduced levels of Halogens, and are also RoHS compliant. Please visit [www.aosmd.com/media/AOSGreenPolicy.pdf](http://www.aosmd.com/media/AOSGreenPolicy.pdf) for additional information.

## Absolute Maximum Ratings

Exceeding the Absolute Maximum Ratings may damage the device.

Parameter	Rating
Storage Temperature (T <sub>S</sub> )	-65 °C to +150 °C
ESD Rating per IEC61000-4-2, contact <sup>(1)</sup>	±8 kV
ESD Rating per IEC61000-4-2, air <sup>(1)</sup>	±8 kV
8/20µs Surge IEC61000-4-5 Peak Pulse Current	± 1 A
EFT Rating per IEC61000-4-4 (5/50ns)	40 A
ESD Rating per Human Body Mode (HBM) <sup>(2)</sup>	±8 kV

**Note:**

- IEC 61000-4-2 discharge with C<sub>Discharge</sub> = 150 pF, R<sub>Discharge</sub> = 330 Ω.
- Human Body Discharge per MIL-STD-883, Method 3015 C<sub>Discharge</sub> = 100 pF, R<sub>Discharge</sub> = 1.5 kΩ.

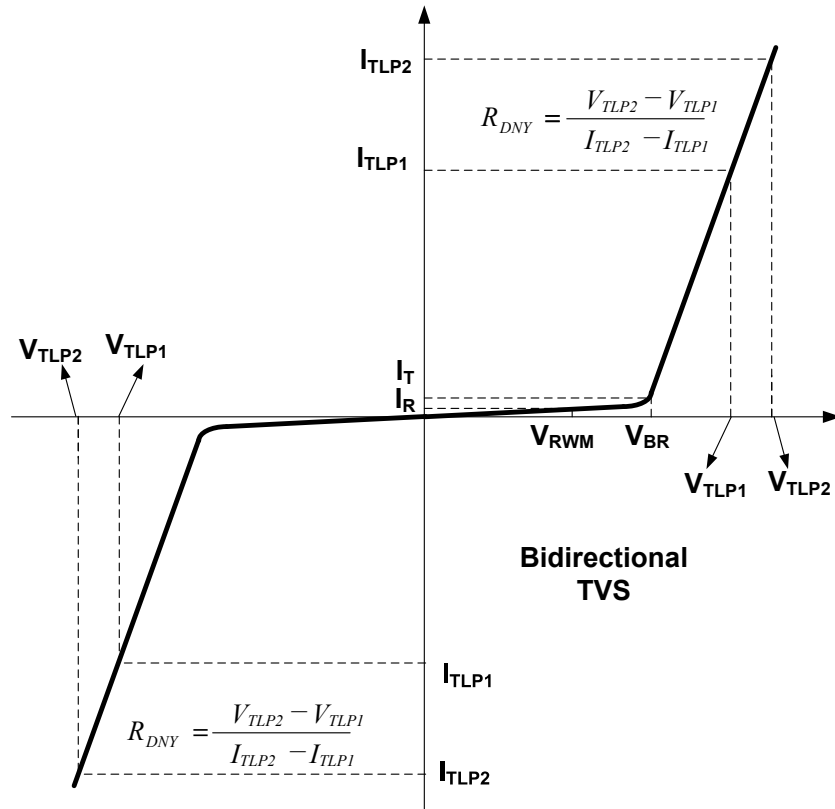
## Maximum Operating Ratings

The device is not guaranteed to operate beyond the Maximum Operating Conditions.

Parameter	Rating
Junction Temperature (T <sub>J</sub> )	-40 °C to +125 °C

## Electrical Characteristics

T<sub>A</sub> = 25°C, unless otherwise noted. Any Pin to Pin.



Symbol	Parameter	Conditions	Min	Typ	Max	Unit
V <sub>RWM</sub>	Reverse Working Voltage				40	V
V <sub>BR</sub>	Reverse Breakdown Voltage	I <sub>T</sub> = 1 mA	43	46	53	
I <sub>R</sub>	Reverse Leakage Current	Max. V <sub>RWM</sub>		1	100	nA
V <sub>CL</sub>	Clamping Voltage <sup>(3)(4)</sup> (100 ns Transmission Line Pulse)	I <sub>TLP</sub> = 1 A		55		V
		I <sub>TLP</sub> = 14 A		78		
	Clamping Voltage <sup>(3)(4)</sup> (IEC61000-4-5, Surge 8/20 μs)	I <sub>PP</sub> = 1 A		58		
C <sub>J</sub>	Junction Capacitance	V <sub>I/O</sub> = 0V, f = 1Mhz		0.35	0.6	pF

**Notes:**

- 3. These specifications are guaranteed by design and characterization.
- 4. Measurements performed using a 100ns Transmission Line Pulse (TLP) system.

## Typical Characteristics

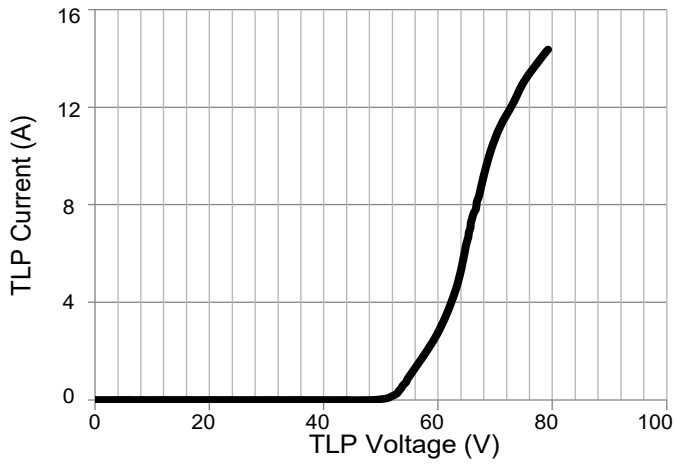


Figure 1. Positive Transmission Line Pulse  
( $t_p=100\text{ns}$ ,  $t_r=0.2\text{ns}$ )

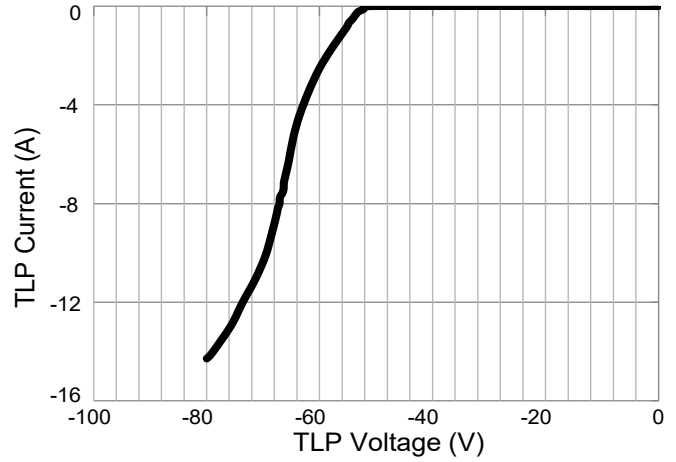


Figure 2. Negative Transmission Line Pulse  
( $t_p=100\text{ns}$ ,  $t_r=0.2\text{ns}$ )

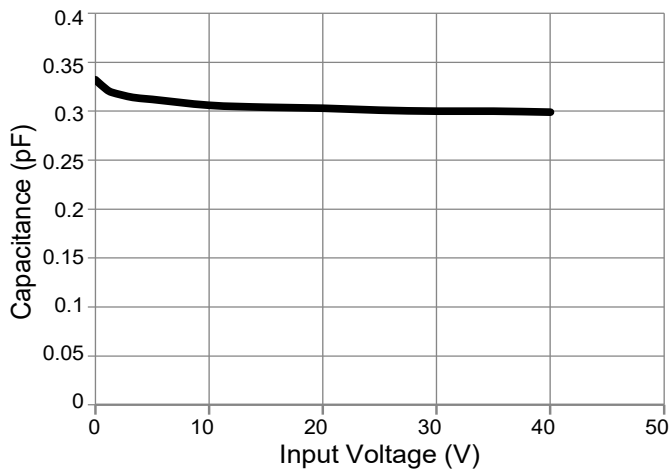


Figure 3. Typical Variations of CJ vs. Input Voltage

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2. A critical component in any component of a life support, device, or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.